

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-014506**Date Inspected:** 02-Jun-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 1100**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

A). Field Splice W1/W2

B). Field Splice W3/W4

C). Field Splice W4/W5

A). Field Splice W1/W2

The QAI observed Chun Fai Tsui ID-3426 perform the repair welding of the areas marked as UT rejects on the Complete Joint Penetration (CJP) groove welds identified as WN: 1W-2W-C and WN: 1W-2W-E. Also at the conclusion of the excavations the QC technician Tom Pasqualone performed a Magnetic Particle Test (MPT) of the excavated areas and no rejectable indications were noted. The application and evaluation of the MPT appeared to comply with the MPT procedure identified as SE-MT-CT-D1.5-101 Rev. 4. The repair welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process and 3.2mm electrode as per the Welding Procedure Specification (WPS) identified as ABF-WPS-1000 Repair Rev. 1. The WPS was also used by the QC inspector, Mr. Pasqualone as a reference to monitor and verify the Direct Current welding parameters and were noted as 125 amps. The welding was performed in the vertical position (3G) with the work positioned approximately in the vertical plane with the groove approximately vertical and the weld progression up. The excavations of the UT rejects was performed by James Zhen.

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Later in the shift, the QAI observed the continued Ultrasonic Testing (UT) of the transverse CJP weld on the side plate field splice identified as WN: 1W-2W-C. The testing was performed by the QC technician Jesse Cayabyab utilizing a G.E./Krautkramer USM 35X. Mr. Cayabyab also utilized the UT Procedure identified as SE-UT-D1. 5-CT-100 Rev.4 during the examination of the CJP. The QC technician performed the required longitudinal wave utilizing a 1" diameter transducer for base metal soundness and a .75 x .75 rectangular transducer to perform the shear wave testing during the testing for weld soundness. The testing was performed on the "A" face (inside) of the weld joint. At the conclusion of the testing, Mr. Cayabyab noted thirteen (13) rejected areas on the side plate identified as "C". In regards to side plate "C" the UT the scanning of the weld joint was performed from the "B" face side (outside) and was completed during this shift.

B). Field Splice W3/W4

The QAI observed the automatic Flux Cored Arc Welding (FCAW-G) on the "A" face of the weld joint identified as Weld Number (WN) 3W-4W-E, Segment E2. The welding was performed by welding personnel Song Tao Huang, ID-3794 utilizing the WPS ABF-D15-3042A-1 Rev. 0. The joint designation appeared to comply with AWS single-v-groove butt joint identified as B-U2a-G. The WPS was also used by the QC inspector Bernie Docena as a reference to monitor and verify the Direct Current Electrode Positive (DCEP) welding parameters which noted and recorded by the QAI as follows: 255 amps, 24.0 volts and a travel speed measured as 320mm per minute. The welding was performed in vertical position (3G) at an approximate incline of 22 degrees. The QAI inspector also verified the minimum preheat temperature of 60 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius. Later during the shift the QAI observed, at random intervals, the QC inspector monitoring the in process welding, the surface temperatures and verifying the DCEP welding parameters.

C). Field Splice W4/W5

The QAI observed the fillet welding of the fitting gear to the deck plate field splice to be utilized during the alignment process of the field splice identified as WN: 4W-5W-A. The welding and the assembly fit-up were performed by Rick Clayborn ID-2773 utilizing the SMAW process during the welding as per the WPS ABF-WPS-D15-F1200A Rev. 1. The WPS was also used by the QC inspector Bonifacio Daquinag, Jr. as a reference to verify the DCEP welding parameters and were noted as follows: 131 amps. Later in the shift the QAI observed the QC inspector verify the surface temperatures and appeared to comply with the contract documents were noted as follows: 20 degrees Celsius (preheat temperature) and the maximum interpass temperature of 230 degrees Celsius.

Later in the shift, the QAI observed the QC inspector, Bonifacio Daquinag, Jr. perform a preliminary inspection of the planar alignment on the field splice identified as WN: 4W-5W-A. The QAI noted three areas that marked by the QC inspector that appeared to exceed contract tolerances and were recorded as follows: Segment A1, Y=0mm to 160mm with a misalignment of 2.0mm-4.0mm and Y=960mm to 1223mm with a misalignment. At Segment A5, Y=26, 950mm to 27,300mm with a misalignment measurement of 2mm-5mm. At the conclusion of the planar alignment survey, the QAI observed the field fit-up of the 12mm x 38mm backing bar performed by Mr. Clayborn. The time of the inspection and verification of this task was 1445 and concluded at 1615. The steel deck temperature at the start of the of the survey was measured at 34 degrees Celsius and at the conclusion of the survey was measured at 26 degrees Celsius.

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QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector's and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW and the FCAW-G process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift was not completed, except as noted, appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs below illustrate the work observed during this scheduled shift.



Summary of Conversations:

There were no pertinent conversations were discussed in regards to the project.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

Inspected By:	Reyes,Danny	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer
